

Comparison of the Performance of Diesel Engine, Run with Diesel and Safflower Oil Methyl Esters, Using a Piston Which Has Five Grooves on Its Crown

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Abstract : In this project, it is planned to carry out an experimental investigation on 4- stroke Direct Injection Diesel Engine, which is a single-cylinder, four-stroke, water-cooled, and constant speed engine capable of developing a power output of 3.7 kW at 1500 rpm, run with diesel fuel and also with different proportions of Safflower oil methyl esters, with a piston having five number of grooves on its crown to create turbulence. Various performance parameters, such as brake power, specific fuel consumption, and thermal efficiency, are calculated. At all the load conditions, the performance of the engine is obtained better for blend B40 (40% Safflower oil + 60% of Diesel). At different load conditions, Brake thermal Efficiency (η_{bth}) is comparatively more for all blends than that for Diesel. At different load conditions, η_{ith} is less for blend B40.

Keywords : four-stroke engine, diesel, safflower oil, engine performance, emissions.

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